Name of Data Layer: Phosphorus Loading: Point & Nonpoint Source Loads

Definition (General Description): This indicator includes a comparative assessment of modeled 1996 progress phosphorus loadings for nonpoint sources in pounds per watershed acre overlaid by the 1996 point source discharges in thousand pounds per year.

Data Source: The Chesapeake Bay Program's Phase IV Watershed Model (WSM) and the Department of Natural Resource's Integrated Watershed Analysis and Management System (IWAMS).

Data Type: Condition _**X**_ Stressor ___ Vulnerability ___ Trend ___ Growth ___ Other ___

Method of Calculation: The Watershed Model divides the Chesapeake Bay's 64,000 square mile drainage basin into about 100 model segments. Each segment contains information generated by a hydrologic submodel, a nonpoint source submodel, and a river submodel. The hydrologic submodel uses rainfall, evaporation, and meteorological data to calculate runoff and subsurface flow for all the basin land uses including forest, agricultural lands, and urban lands. The surface and sub surface flow ultimately drive the nonpoint source submodel which simulates soil erosion and the pollutant loads from the land to the rivers. The river submodel routes flow and associated pollutant loads from the land through the lakes, rivers, and reservoirs to the Bay. However, in the indicator represented here, the loadings are depicted as they affect the individual watersheds themselves (no riverine transport factor was included). Please refer to the "Chesapeake Bay Watershed Model Application and Calculation of Nutrient and Sediment Loads", Appendices A through H, for more detailed explanations. These documents may be found at http://www.chesapeakebay.net/bayprogram.

DNR's Integrated Watershed Analysis & Management System is a GIS-based project that is used to track implementation of best management practices, process data from the Watershed Model and calculate nutrient loads and load reductions for Maryland's 8-digit watersheds.

Point source phosphorus loads come from municipal sewage treatment plants or from industries. Point source loads are calculated based on actual discharge data for each facility, provided by the Maryland Department of Environment.

Watershed Scale: Tributary Strategy Region ___ USGS 8 Digit ___ MD 6 Digit ___ MD 8 Digit _**X**_ MD 12 Digit ___ Adaptable to Any Scale _**X**_ Other: ___

Data Custodian: US Environmental Protection Agency's Chesapeake Bay Program and MD DNR/Chesapeake and Coastal Watershed Service - Watershed Management & Analysis Division - Helen Stewart or Mary Searing at (410) 260-8790.

Clean Water Goal: Yes _**X**_ No ___

If Yes: Description of Goal: fishable/swimmable standards for dissolved oxygen

Other Natural Resource Goal: Yes **_X_** No **___**

If Yes: Benchmark Goal **_X_** Relative Goal **___**

Description of Benchmark: To achieve a 40 percent reduction of controllable sources of nitrogen and phosphorus entering the mainstem Chesapeake Bay by the year 2000 and to maintain at least this level of reduction thereafter.

Assumptions: This data is developed using representative models for large watersheds. Actual monitored water quality data may provide different loads and loading rates.

Comments: _____

References: